IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 24, Issue 11 Ser. 7 (November. 2025), PP 55-59
www.iosrjournals.org

Early vs. Late Oral Feeding Following Distal Partial Gastrectomy for Gastric Malignancy: A Comparative Study

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Abstract

Introduction: *Gastric cancer remains a significant cause of morbidity and mortality worldwide, and distal partial gastrectomy is a standard surgical treatment for localized disease. Postoperative recovery, including the return of gastrointestinal function and nutritional status, plays a crucial role in patient outcomes and length of hospital stay. The aim of this study is to determine the feasibility and safety of EOF following distal partial gastrectomy for gastric malignancy.* ***Methods:*** *This comparative observational study was conducted from January 2024 to December 2024, and included 58 patients undergoing distal partial gastrectomy for histologically confirmed gastric malignancy at Sylhet MAG Osmani Medical College Hospital, Sylhet, Bangladesh. Data were analyzed by SPSS version 25.0.* ***Result:*** *In 58 patients undergoing distal partial gastrectomy, baseline demographics and operative factors were comparable between Early Oral Feeding (EOF) and Late Oral Feeding (LOF) groups. EOF led to faster gastrointestinal recovery (flatus 2.1 vs 3.0 days, bowel movement 3.0 vs 4.2 days, soft diet 3.8 vs 5.1 days), shorter hospital stays (6.4 vs 8.1 days), improved nutritional and inflammatory markers (albumin 3.4 vs 3.2 g/dL, CRP 18.5 vs 21.7 mg/L), and better patient-reported outcomes (pain 3.8 vs 4.6, earlier ambulation 1.9 vs 2.4 days, satisfaction 8.2 vs 7.1).* ***Conclusion:*** *In this study, early oral feeding after distal partial gastrectomy led to faster gastrointestinal recovery, earlier diet advancement, and a shorter hospital stay, with no increase in complications. Biochemical markers and pain scores also improved more rapidly in the early feeding group.*

Keywords: *Distal Partial Gastrectomy, Gastric Malignancy, Oral Feeding*

I. INTRODUCTION

Gastric cancer has remained one of the leading causes of cancer-related deaths globally. It was reported as the 5th most common cancer and the 4th leading cause of cancer death worldwide [1]. Over a million new cases of gastric cancer are diagnosed, worldwide, each year. The incidence of gastric cancer exhibits significant geographical variation, with over 50% of new cases emerging in developing countries [2]. Malignancy involving the distal stomach and pylorus is still common in the developing countries, whereas the incidence of proximal gastric malignancy is increasing in the developed countries. As incidence of distal gastric malignancy is high, distal partial gastrectomy is the most commonly performed operation for gastric cancer in our country [3]. The principle of operative intervention for gastric cancer is to achieve complete resection of the primary with an en bloc regional lymphadenectomy, as gastric cancer has a high propensity for lymphatic spread. Subtotal gastrectomy with a D2 lymphadenectomy is particularly suitable for gastric cancer involving the pylorus and distal third of the stomach. Various reconstruction methods can be used following subtotal gastrectomy.[4] When macroscopic and microscopic clearance is obtained it provides equivalent survival rates compared to total gastrectomy, with a lower incidence of post-operative morbidity and mortality. The patient is left with a gastric remnant, which reduces the potentiality of post gastrectomy syndromes. Additionally, an anastomosis onto a well-vascularized stomach remnant is more secure than an anastomosis onto the esophagus. As Gastric cancer surgery is a complex procedure, it leads to a high risk of morbidity and mortality. Many factors can contribute to the onset of complications with sub-sequent effects on post-operative morbidity and increased mortality. Commonly occurring complications after gastrectomy are, wound dehiscence, anastomotic leakage, intra-abdominal abscess, intra-abdominal bleeding, dumping syndrome, pulmonary infection, ileus, wound infection etc [5]. With

increasing understanding of the physiologic response following operative intervention, several regimens of post-operatives feeding have been adopted and the latest guidelines promotes early postoperative oral feeding as an important part of the enhanced recovery after surgery (EARS) protocol [6]. Traditionally, oral feeding is delayed after gastric surgery, until the passage of flatus, or appearance of audible bowel sounds or bowel movements due to the concerns of increased risk of anastomosis leakage. The rationale of nil by mouth was to allow the anastomosis to heal before being stressed by food. However, recent studies have questioned this traditional concept of fasting until passage of flatus after gastric surgery. Contrary to the widespread belief, studies have confirmed the safety and feasibility of early oral feeding (EOF) [7]. Another meta-analysis of six RCTs with 454 patients who underwent distal gastrectomy revealed that EOF after gastric cancer surgery seems feasible and safe, even started at the day of surgery irrespective of the extent of the gastric resection and the type of surgery. Additionally, EOF did not increase the incidence of postoperative complications or re-admissions significantly reduced the length of hospital stay [8]. A prospective cohort study based in a high-volume tertiary hospital in China with a total of 206 patients shows Early oral feeding after laparoscopic gastrectomy can promote the recovery of gastrointestinal function, improve postoperative nutritional status, reduce length of hospital stay and expenses while not increasing the incidence of related complications, which indicates its safety, feasibility and potential benefits for gastric cancer patients [9]. The aim of this study is to determine the feasibility and safety of EOF following distal partial gastrectomy for gastric malignancy.

II. METHODS

This comparative observational study was conducted from January 2024 to December 2024, and included 58 patients undergoing distal partial gastrectomy for histologically confirmed gastric malignancy at Sylhet MAG Osmani Medical College Hospital, Sylhet, Bangladesh. Patients were divided into Early Oral Feeding (EOF), initiating clear liquids within 24 hours postoperatively, and Late Oral Feeding (LOF), starting oral intake after return of bowel function. Inclusion criteria were adults ≥18 years undergoing elective distal partial gastrectomy with hemodynamic stability, while exclusion criteria included emergency surgery, total gastrectomy, pre-existing obstruction, severe malnutrition, or prolonged ICU stay. Demographic, clinical, operative, and postoperative data were collected, with primary outcomes including time to first flatus, first bowel movement, initiation of soft diet, and hospital stay, and secondary outcomes including pain score, time to ambulation, laboratory markers (albumin, CRP), complications, and patient satisfaction. Both groups received standardized perioperative care, and patients were monitored for feeding tolerance. Data were analyzed by SPSS version 25.0, using t-tests for continuous variables and chi-square tests for categorical variables, with $p<0.05$ considered significant. Ethical approval was obtained, and written informed consent was secured from all participants.

III. RESULTS

Table I. Baseline Demographic and Clinical Characteristics (n = 58)

Variables	EOF (n=29)	LOF (n=29)	p-value
Age (years), mean ± SD	56.4 ± 8.9	57.2 ± 9.1	0.72
Sex (Male), n (%)	19 (65.5%)	18 (62.1%)	0.78
BMI (kg/m²), mean ± SD	22.1 ± 2.5	22.3 ± 2.7	0.83
Co-morbidities (HTN/DM), n (%)	14 (48.3%)	15 (51.7%)	0.79
ASA Score (I–II), n (%)	22 (75.9%)	21 (72.4%)	0.75

Both groups showed similar baseline characteristics. The mean age was 56.4 years in EOF vs 57.2 years in LOF, and the proportion of males was comparable (65.5% vs 62.1%). BMI values were almost identical (22.1 vs 22.3 kg/m²). The prevalence of comorbidities (48.3% vs 51.7%) and ASA I–II status (75.9% vs 72.4%) showed no significant differences, confirming comparable preoperative profiles. [Table I]

Table II. Operative Parameters (n = 58)

Variables	EOF (n=29)	LOF (n=29)	p-value
Mean operative time (minutes)	182 ± 24	185 ± 26	0.65
Intraoperative blood loss (ml)	230 ± 55	240 ± 60	0.54
Lymph node dissection (D1/D2), n (%)	10/19	12/17	0.58
Tumor stage (II/III/IV), n (%)	8/15/6	9/14/6	0.94

Operative profiles were similar. Mean operative time was 182 minutes in EOF and 185 minutes in LOF. Blood loss was also comparable (230 ml vs 240 ml). The distribution of lymph node dissection types (D1/D2: 10/19 vs 12/17) and tumor stages (Stage II–IV: 8/15/6 vs 9/14/6) showed no meaningful differences. [Table II]

Table III. Postoperative Gastrointestinal Recovery (Primary Outcomes)

Outcomes	EOF (n=29)	LOF (n=29)	p-value
Time to first flatus (days)	2.1 ± 0.5	3.0 ± 0.6	**<0.001**
Time to first bowel movement (days)	3.0 ± 0.7	4.2 ± 0.8	**<0.001**
Time to initiation of soft diet (days)	3.8 ± 0.6	5.1 ± 1.0	**<0.001**
Length of hospital stay (days)	6.4 ± 1.2	8.1 ± 1.5	**<0.001**

Postoperative recovery was significantly faster in the EOF group. Patients passed first flatus in 2.1 days in EOF vs 3.0 days in LOF. First bowel movement occurred earlier (3.0 vs 4.2 days). EOF patients advanced to soft diet significantly sooner (3.8 vs 5.1 days). Consequently, hospital stay was shorter, averaging 6.4 days in EOF compared to 8.1 days in LOF, showing clear benefit of early feeding. [Table III]

Table IV. Postoperative Complications (n=58)

Complications	EOF (n=29)	LOF (n=29)	p-value
Anastomotic leak	1 (3.4%)	2 (6.9%)	0.55
Postoperative ileus	2 (6.9%)	5 (17.2%)	0.21
Surgical site infection	3 (10.3%)	4 (13.8%)	0.68
Pneumonia	1 (3.4%)	3 (10.3%)	0.30
Overall complications	6 (20.7%)	12 (41.4%)	0.07

Although not statistically significant, complication rates were lower in the EOF group. Anastomotic leak occurred in 3.4% vs 6.9%, postoperative ileus in 6.9% vs 17.2%, and pneumonia in 3.4% vs 10.3% of patients. Overall complications were 20.7% in EOF compared to 41.4% in LOF, demonstrating a clear downward trend favoring early feeding. [Table IV]

Table V. Nutritional and Laboratory Outcomes

Parameters (Post-op Day 5)	EOF (n=29)	LOF (n=29)	p-value
Serum albumin (g/dL)	3.4 ± 0.3	3.2 ± 0.4	0.04
Hemoglobin (g/dL)	11.2 ± 1.1	10.9 ± 1.2	0.29
Total lymphocyte count (/mm³)	1590 ± 180	1520 ± 190	0.16
CRP (mg/L)	18.5 ± 4.2	21.7 ± 5.0	0.01

Nutritional and inflammatory markers were better in EOF. Serum albumin was higher (3.4 g/dL vs 3.2 g/dL) and CRP was significantly lower (18.5 mg/L vs 21.7 mg/L). Hemoglobin (11.2 vs 10.9 g/dL) and lymphocyte count (1590 vs 1520/mm³) showed mild improvement in EOF. [Table V]

Table VI. Patient-Reported Recovery Indicators

Indicators	EOF (n=29)	LOF (n=29)	p-value
Nausea/Vomiting (Yes), n (%)	4 (13.8%)	9 (31.0%)	0.11
Pain score (VAS Day 3)	3.8 ± 0.9	4.6 ± 1.0	0.002
Time to independent ambulation (days)	1.9 ± 0.5	2.4 ± 0.6	0.001
Patient satisfaction (1–10 scale)	8.2 ± 0.7	7.1 ± 0.9	<0.001

Patient-reported outcomes favored early feeding. Postoperative nausea/vomiting was lower (13.8% vs 31%). Pain scores were significantly reduced (3.8 vs 4.6), and patients ambulated earlier (1.9 vs 2.4 days). Overall satisfaction was higher (8.2 vs 7.1), reflecting a smoother recovery experience in the EOF group. [Table VI]

IV. DISCUSSION

In our study of 58 patients undergoing distal partial gastrectomy, Early Oral Feeding (EOF) produced faster gastrointestinal recovery and shorter hospitalization than Late Oral Feeding (LOF): first flatus 2.1 ± 0.5 vs 3.0 ± 0.6 days, first bowel movement 3.0 ± 0.7 vs 4.2 ± 0.8 days, soft diet 3.8 ± 0.6 vs 5.1 ± 1.0 days, and length of stay 6.4 ± 1.2 vs 8.1 ± 1.5 days. We also observed improved biochemical recovery at POD5 (albumin 3.4 ± 0.3 vs 3.2 ± 0.4 g/dL; CRP 18.5 ± 4.2 vs 21.7 ± 5.0 mg/L), lower pain (VAS day-3 3.8 ± 0.9 vs 4.6 ± 1.0), earlier ambulation (1.9 ± 0.5 vs 2.4 ± 0.6 days), and a trend toward fewer overall complications (20.7% vs 41.4%, p = 0.07). The direction and magnitude of our principal outcomes mirror pooled evidence. Liu et al.'s meta-analysis of randomized trials concluded EOF shortens anal-exhaust time and hospital stay and is feasible even when started on the day of surgery. Specifically, their pooled findings of earlier bowel recovery and shorter hospitalization match our observed reductions (≈0.9 days earlier flatus; ≈1.7 days shorter stay), supporting that our single-center effect sizes are compatible with aggregated trial data.[8] Hur et al. (randomized clinical data) reported that EOF was feasible after gastric cancer surgery and resulted in shorter hospitalization and improved early quality-of-life metrics. While Hur's trial did not report identical numerical endpoints to ours, both studies demonstrate clinically meaningful shortening of inpatient recovery (our mean stay 6.4 days vs LOF 8.1), consistent with Hur's conclusion that EOF accelerates early recovery without added morbidity [9]. Sierzega et al., in a large retrospective series after total gastrectomy (n=353), found EOF did not increase anastomotic failure and in fact associated with fewer surgical (15% vs 24%) and general (8% vs 23%) complications in their cohort [10]. In comparison, our study observed numerically fewer overall complications with EOF (20.7% vs 41.4%) though this did not reach statistical significance; both datasets therefore suggest EOF is not linked to increased anastomotic risk and may even reduce some complications when applied within modern care pathways [11]. Studies focusing on radical/total gastrectomy also show consistent benefits. Lu et al. reported earlier gastrointestinal recovery and safety of EOF after laparoscopic radical total gastrectomy, including no significant rise in severe complications. Our data-faster flatus and earlier diet advancement with no excess of leaks—align with Lu's findings, indicating EOF benefits generalize across distal and total resections when protocols are institutionalized.[9] More recent systematic reviews and meta-analyses quantify these effects: He et al. (2022) reported EOF shortened anal-exhaust time (MD −0.61 days) and increased serum albumin/prealbumin, while not increasing complication or feeding-intolerance rates.[12] Xu et al.'s 2024 meta-analysis similarly concluded EOF reduces hospital days and time to first flatus without raising readmission or complication rates.[13] Our albumin and CRP improvements (POD5) and shorter stay are consistent with those pooled biochemical and clinical benefits [12,13].

Limitations of The Study: The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community

V. CONCLUSION

In this study, early oral feeding after distal partial gastrectomy led to faster gastrointestinal recovery, earlier diet advancement, and a shorter hospital stay, with no increase in complications. Biochemical markers and pain scores also improved more rapidly in the early feeding group.

VI. RECOMMENDATION

Based on the study findings, it is recommended that early oral feeding be incorporated into routine postoperative care for patients undergoing distal partial gastrectomy for gastric malignancy, as it promotes faster recovery and shortens hospitalization without increasing complications.

Funding: *No funding sources*
Conflict of interest: *None declared*

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